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Beth Cole Brown
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Dear Beth,

Enclosed is the report on the Benjamin Bannaker flotation results, which Kris Peters asked me to send to you.

If you have any questions or need further information, please do not hesitate to contact me.

Sincerely,

Roger W. Moeller

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BENJAMIN BANNAKER ARCHAEOLOGICAL PROJECT: FLOTATION ANALYSIS

Roger W. Moeller
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ABSTRACT

The flotation and subsequent analysis of soil samples from two features interpreted as being a root cellar and the remains of a log dwelling associated with Benjamin Bannaker revealed the intensive utilization of nuts (walnut?), shellfish, animals, and a few species of wild plants -- grape, chenopodium, pokeweed, and milkweed.

INTRODUCTION

The flotation and subsequent analysis of the 20 samples was undertaken in early January, 1986, when a large block of time could be devoted to the project. This immersion technique is essential to understanding the entire collection since differences and similarities among the various features and levels are more apparent than when the study is protracted with many other distractions.

A highly significant aspect of this particular study was the opportunity to see the entire soil matrix and all of its contents, rather than just the materials sorted or processed by others. The background noise (e.g., gravels, clays, obviously recent contaminants) provides an important dimension to the archaeological context and all its associated artifacts and ecofacts. The absence of recent contaminants must be confirmed from the original sample and not just be assumed from the sorted materials. Were the contaminants never present, had they been removed by an astute sorter, was the research design intentionally or unintentionally responsible for precluding their inclusion, or what? Each question must be raised and answered before one can assume that the data are truly reliable indications of what actually happened in the past. Because some contaminants are "always" present and are assumed to be a part of everyday life, their absence is extremely important to document.

Quantification of flotation data is very difficult and should be undertaken carefully and differently in each research design. The simplest quantification is presence/absence. Weights, counts, volumes, and minimum number of individuals (e.g., plants, animals, vessels) are more precise, but the implications of each are complicated by a consideration of the relative and absolute amounts of matrix analyzed from features, levels outside of features, and portions believed not to have cultural deposits

Counts of seeds must be placed into the context of their abundance on each plant, the role of that plant in the life of the people, and the manner in which seeds come to be in an archaeological context. The mere presence of the seeds is important, whether they are in context or are actually recent contaminants; either way their presence must be explained. Similar features from the same

archaeological components are expected to have similar contents as well as similar recent contaminants due to modern seed rain and animal action. Differentiating between true contents and recent contaminants is sometimes difficult, but given enough samples patterning does emerge.

Because this is a Historic site dating between 1737 and 1806, a very wide variety of artifacts and ecofacts could be in true association; unlike the case of prehistoric sites where one can easily excluded European or Asian introduced species, non-natural hybrids, species known only from hundreds of miles distant, and "recent" domesticates. The seeds identified from this site individually and collectively form a meaningful cultural pattern.

SOIL MATRIX

There is no basis for differentiating the samples on the basis of the soil matrix from which they were taken (Table 1). The heavy fraction in the flotation was consistently a large-grained quartzy sand with occasional occurrences of fired clay. The light fraction showed slightly more variation in relative amounts of wood charcoal, roots, and fibers. No one sample is from an especially disturbed, obviously different, or uniquely cultural context compared to the others. Because structural evidence suggests the presence of a root cellar and the log cabin, then association of the artifacts and ecofacts to discrete functional episodes (storage vs. utilization) must be on the basis of something other than the soil matrix. The matrix itself is merely a storage medium and was not altered by the functions occurring above or within it. The coarse-grained sand within the root cellar may have been part of the extant soil matrix, may have been brought in to be used, or <u>both</u>. This type of sand in a Historic root cellar is consistent with the accepted storage practices for root crops: a layer of sand is covered by a layer of vegetables which are covered by more sand.

STRATIFICATION

The expected consistency of gradual change from level to level cannot be assessed in detail because of the small size of each sample and the lack of stratigraphic, incremental, sampling columns; but the uppermost level in each feature did have the expected higher fiber/root content (Table 1). This observation is of note because it supports the argument that the context of the deeper levels which lacks large amounts of recent roots and fibers is undisturbed by burrowing and nesting animals. Finding no evidence of this typical form of disturbance which can introduce large numbers of recent seeds into an archaeological context, however, does not guarantee that other disturbances have not occurred.

Another item using found in highly organic upper strata is land snails. Since these were (surprisingly) absent from all samples, they cannot be used to judge the stratigraphic integrity of the deposits, but their absence is of note. They are one of the few recent items that is virtually always present.

Given the preceding, there is no reason to believe that there has been any significant disturbance of the stratigraphic sequence that could account for recent seeds being found at depth. This coupled with the recent date of the site precludes any seed from being excluded from the context solely because it

does not appear to be carbonized or otherwise prevented from decaying since the occupation of the site. All seeds found, except for obviously recent ones from upper levels, were considered to be in true association with the archaeological context, because there is no logical basis for excluding them.

IDENTIFICATIONS AND INTERPRETATION

The only definitely carbonized seed was a single nut (walnut?- *Juglans* spp) fragment. Of the other seeds--grape (*Vitis* spp), pokeweed (*Phytolacca* americana), maple (*Acer* spp), chenopodium (*Chenopodium* spp) and milkweed (*Asclepias* sp)--only the maple was recently introduced into the archaeological context. Unidentifiable calcined and non-calcined bone (some of which was probably from a large mammal judging from the thickness of the fragments) and shellfish shell fragments complete the dietary picture. Artifacts included a few glazed ceramic fragments and green glass (Table 1).

The seeds, grape, pokeweed, chenopodium, and milkweed associated with the archaeological contexts are from very prolific and valuable wild food plants. The last three will advent in any disturbed ground and proliferate in spite of any effort to contain them. Given their dietary potential and the absence of domesticates from the archaeological context, it is likely that Benjamin Bannaker even encouraged their spread. Although maligned as weeds by modern gardeners who do not appreciate them, chenopodium (lamb's quarter or goosefoot) is one of the first greens to be available in early spring. But as the plant matures, the stalk becomes too woody for human consumption. The role of greens in the diet is assumed by later appearing species including pokeweed. In the late summer, each chenopodium plant will produce from 75,000 to 100,000 tiny black seeds which can be eaten as is or added to flour for baking.

When the milkweed stalk first appears above the ground in early spring, it can be prepared and eaten in the same way as asparagus. As it matures the stalk becomes too coarse and toxic for eating, but the blossoms, buds, and even pods provide food through August (Kavasch 1979:21,45,47,52).

Of all of these, however, only chenopodium and grape seeds and walnuts, are likely to be found within a storage context. When the chenopodium seeds are available in late summer, huge quantities can be easily collected, dried, and stored for future use. Walnuts are easily gathered -- if you can get there ahead of squirrels -- dried, and stored as well. Grapes mature in September and can be dried for later use without removing the seeds. Grape butter, jam, or jelly are other storage alternatives which will necessitate removal of the seeds. Although in these instances the occurrence of seeds in the archaeological context is understandable, one need not always assume that the seed bearing portion of the plant is being stored intentionally or even utilized for food.

Although the pokeweed berries are allegedly toxic, birds eat large quanities of them and redeposit the seeds wherever they roost. The pokeweed seed is extremely hard and will endure a ride through any animal's digestive tract and come out ready to sprout, which accounts for it being very widespread. Poke berries have other uses that could explain why the seeds are at the site: dye and medicine (Tantaquidgeon 1977:33,74).

Despite all of the reasons why Bannaker should have utilized these plants, there is no actual proof that he did. They require no special procuring and processing implements or facilities; the plants will grow completely untended, and their seeds could have been effectively dispersed into the archaeological

contexts without his knowledge or intent even during the occupation of the cabin and use of the root cellar. Birds, the wind, his clothing, or even the soles of his feet could have brought in all of the seeds. A single walnut fragment would be a small loss to a squirrel who has thousands. On the other hand, Bannaker could have easily destroyed those plants growing close to the cabin before they matured and produced seeds which would have spread. But the evidence is that he did not.

TABLE 1: A Summary of Artifacts and Ecofacts Recovered from Features, Layers, and Levels

Feature 10	Level 1	FS 905	NE Quad	Scant charcoal chunks and bits 1 grape
Feature 10	Level 2	FS 916	NE Quad	Charcoal chunks, fibers 1 grape, 1 nut (walnut?)
Feature 10	Level 1	FS 923	NW Quad	Charcoal bits, roots/fibers 7 grapes
Feature 10	Level 3	FS 928	NE Quad	Roots/fibers, red clay 8 grape, 1 pokeweed, bone fragment
Feature 10	Layer 4	FS 933	NE Quad	Charcoal chunks 9 grape, 1 pokeweed, 1 chenopodium,
Feature 10	Layer 5	FS 944	NE Quad	Charcoal chunks, red clay 2 grape, 1 milkweed
Feature 10	Layer 6	FS 952	NE Quad	Charcoal bits, roots 1 grape, 1 chenopodium, 1 bone splinter, 1 calcined bone, 1 shell fragment
Feature 10	Level 2	FS 957	NE Quad	Charcoal chunks, roots 5 grape, 1 very recent maple
Feature 22	Level 1	FS 972	N180 W450	Charcoal bits 1 grape, 1 glass fragment
Feature 22	Level 1	FS 976	N185 W450	Charcoal chunks 1 pokeweed, 1 recent maple, 2 glazed ceramics fragments
Feature 10	Level 3	FS 987	NW Quad	Fibers 4 grape, 1 pokeweed
Feature 10	Level 4	FS 994	NW Quad	Charcoal chunks, roots/fiber 1 grape, 1 bone fragment
Feature 22	Level 2	FS 999	N180 W450	Charcoal bits, roots Calcined and non calcined bone

Feature 10	Layer 5	FS 1004	NW Quad	Numerous charcoal chunks, bits
	1 grape, bone splinter			
Feature 10	Layer 6	FS 1009	NW Quad	Charcoal chunks
	Shell fragment			
Feature 22	Layer 2	FS 1014	N180 W450	Charcoal chunks and bits
	Nothing found			
Feature 10	Layer 7	FS 1021	NW Quad	Charcoal bits
	1 grape			
Feature 10	Layer 7	FS 1026	NW Quad	Charcoal bits
	Shell fragment			
Feature 12	Level 1	FS 1032	N250 W455	Charcoal bits, roots/fibers
	1 pokeweed			
Feature 11	Level 1	FS 1034	N250 W455	Charcoal chunks and bits
	1 chenopodium, calcined bone			

NOTE: Feature 10--Root Cellar Feature 22--Dwelling
Features 11 and 12--post holes

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